Electronic Supplementary Information 7

Non-identical Electronic Characters of the Internucleotidic Phosphates in RNA Modulate the Chemical Reactivity of the Phosphodiester Bonds

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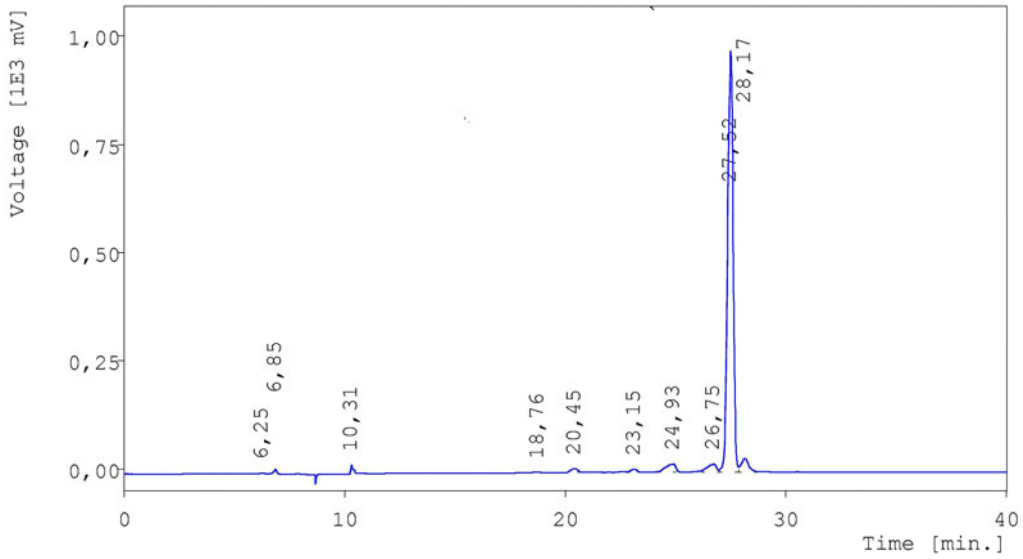
Content:

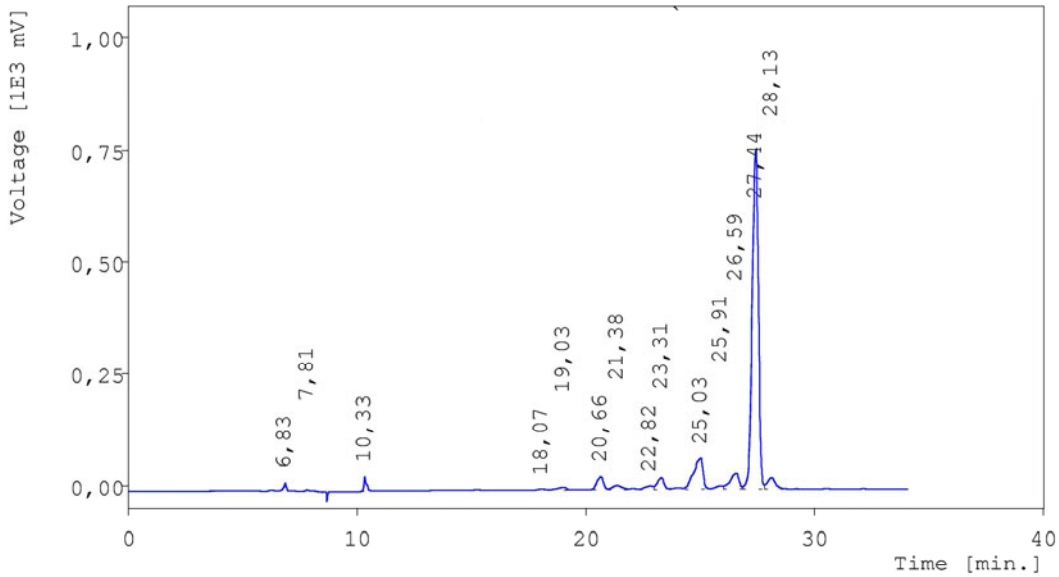
Figure S15C



Result Table - Calculation Method Uncal

Peak No.	Reten. time	Area [mV.s]	Height [mV]	W05 [min.]	Area [%]	Height [%]
1	6,247	27,7929	2,248	0,207	0,141	0,205
2	6,853	114,7137	11,321	0,140	0,581	1,031
3	10,307	211,4381	21,306	0,120	1,072	1,941
4	18,760	47,3597	2,233	0,367	0,240	0,203
5	20,453	255,7330	10,147	0,353	1,296	0,924
6	23,153	118,5945	7,016	0,293	0,601	0,639
7	24,927	630,2361	19,122	0,560	3,194	1,742
8	26,753	592,2369	18,847	0,493	3,002	1,717
9	27,520	16974,1040	973,856	0,287	86,028	88,728
10	28,167	758,7247	31,480	0,380	3,845	2,870
-	Total	19730,9337	1097,576			

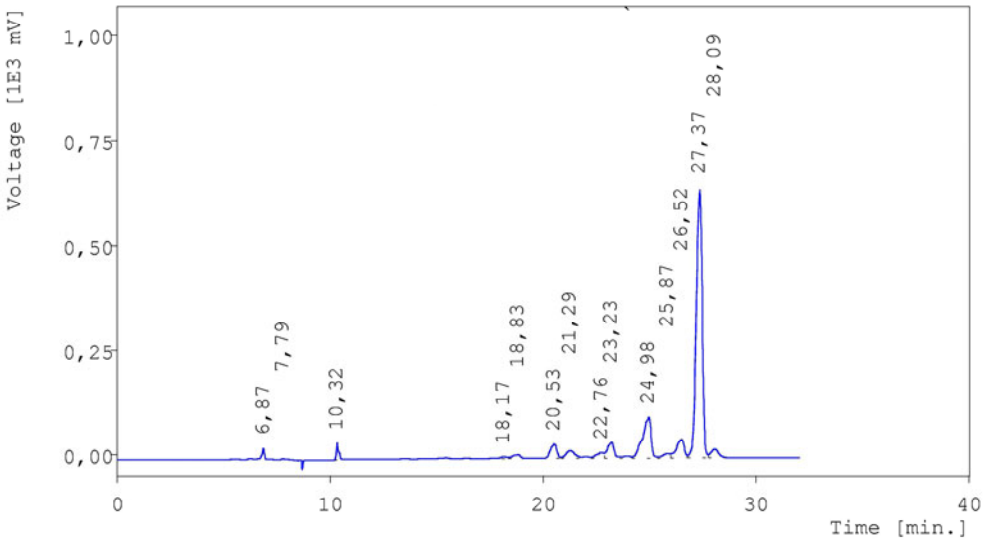
Figure S15(c1): RP-Hplc analysis of alkaline Hydrolysis products of **5′-r(CACGAAC)-3′ (7b)** [after digestion for **0.5h** at pH 12.5 using 0.03N NaOH/ 20°C, followed by quenching with 0.03 N aq. acetic acid]. For Hplc conditions see the experimental section in the text.



Result Table - Calculation Method Uncal

Peak No.	Reten. time	Area [mV.s]	Height [mV]	W05 [min.]	Area [%]	Height [%]
1	6,833	135,4034	17,716	0,100	0,652	1,711
2	7,807	28,7554	2,984	0,133	0,139	0,288
3	10,327	292,9860	33,735	0,100	1,412	3,258
4	18,067	68,0788	2,642	0,313	0,328	0,255
5	19,033	185,1811	6,286	0,407	0,892	0,607
6	20,660	613,9674	29,368	0,333	2,959	2,836
7	21,380	341,0867	9,677	0,460	1,644	0,935
8	22,820	200,0463	8,389	0,420	0,964	0,810
9	23,313	553,2923	26,555	0,333	2,666	2,565
10	25,033	2106,0838	69,557	0,453	10,149	6,718
11	25,913	180,2664	7,800	0,360	0,869	0,753
12	26,587	976,7549	36,201	0,407	4,707	3,496
13	27,440	14437,2045	758,864	0,313	69,570	73,291
14	28,127	632,9763	25,639	0,387	3,049	2,477
-	Total	20752,0833	1035,413			

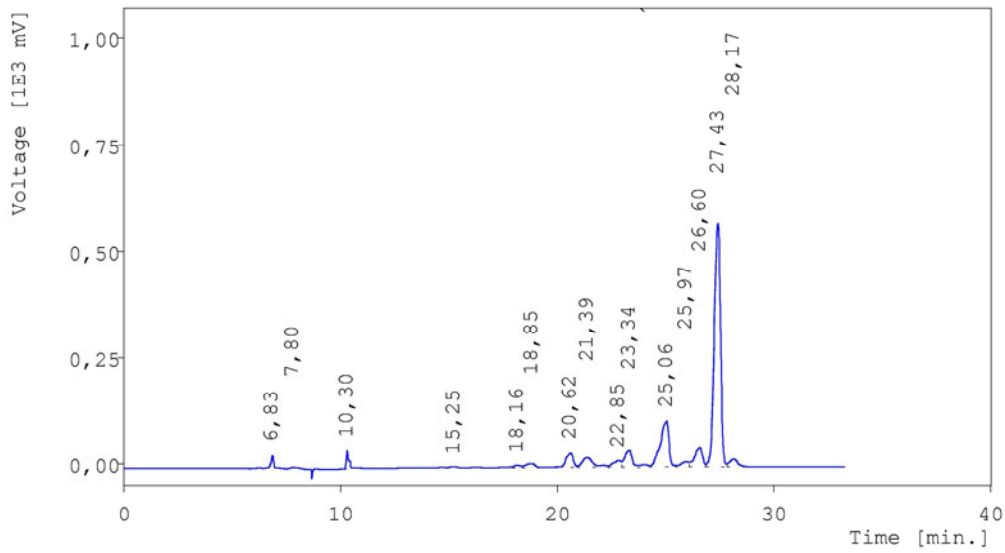
Figure S15(c2): RP-Hplc analysis of alkaline Hydrolysis products of **5′-r(CACGAAC)-3′ (7b)** [after digestion for **2h** at pH 12.5 using 0.03N NaOH/ 20°C, followed by quenching with 0.03 N aq. acetic acid]. For Hplc conditions see the experimental section in the text.



Result Table - Calculation Method Uncal

Peak No.	Reten. time	Area [mV.s]	Height [mV]	W05 [min.]	Area [%]	Height [%]
1	6,867	199,6093	25,418	0,107	0,961	2,536
2	7,793	26,0013	2,728	0,147	0,125	0,272
3	10,320	347,3141	40,882	0,107	1,672	4,079
4	18,167	111,4454	4,736	0,367	0,536	0,473
5	18,827	236,1480	8,846	0,433	1,137	0,883
6	20,533	740,7861	33,993	0,353	3,565	3,391
7	21,293	643,7111	18,589	0,460	3,098	1,855
8	22,760	330,0567	13,680	0,427	1,589	1,365
9	23,227	972,5792	37,543	0,353	4,681	3,746
10	24,980	2738,5321	98,445	0,400	13,180	9,822
11	25,867	266,2907	10,980	0,380	1,282	1,096
12	26,520	1143,8013	44,298	0,393	5,505	4,420
13	27,373	12481,6637	641,307	0,320	60,074	63,983
14	28,087	539,2216	20,868	0,407	2,595	2,079
-	Total	20777,1606	1002,313			

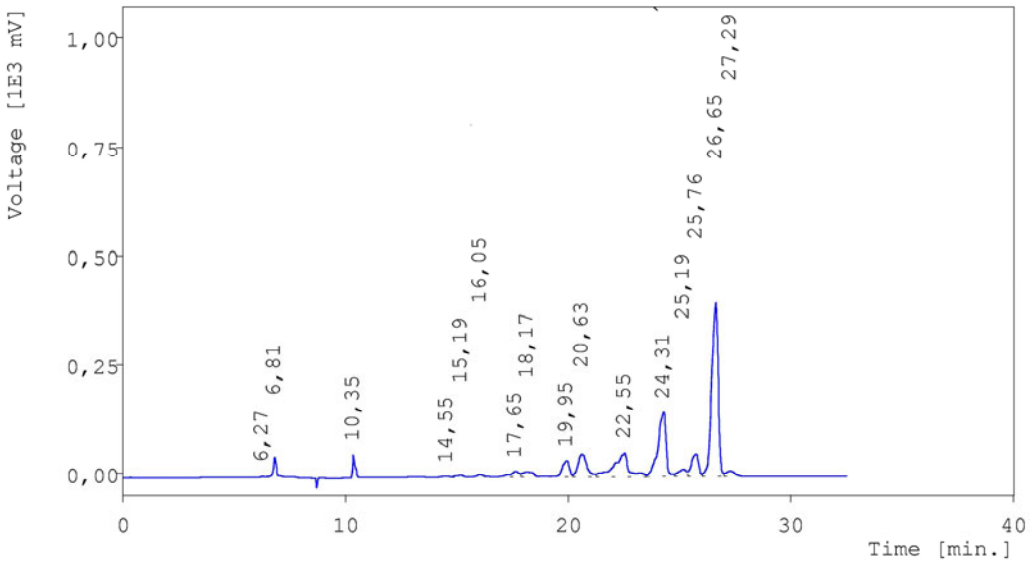
Figure S15(c3): RP-Hplc analysis of alkaline Hydrolysis products of **5′-r(CACGAAC)-3′ (7b)** [after digestion for **3h** at pH 12.5 using 0.03N NaOH/ 20°C, followed by quenching with 0.03 N aq. acetic acid]. For Hplc conditions see the experimental section in the text.



Result Table - Calculation Method Uncal

Peak No.	Reten. time	Area [mV.s]	Height [mV]	W05 [min.]	Area [%]	Height [%]
1	6,833	254,3588	31,486	0,113	1,196	3,231
2	7,800	34,8544	3,188	0,160	0,164	0,327
3	10,300	396,1694	44,518	0,113	1,863	4,569
4	15,253	106,7951	3,053	0,407	0,502	0,313
5	18,160	213,9697	5,499	0,407	1,006	0,564
6	18,847	283,3333	9,333	0,500	1,333	0,958
7	20,620	850,0828	35,937	0,367	3,998	3,688
8	21,393	859,4365	23,872	0,500	4,042	2,450
9	22,847	407,7998	16,067	0,453	1,918	1,649
10	23,340	1139,4480	41,479	0,373	5,359	4,257
11	25,060	3065,0115	108,781	0,413	14,415	11,164
12	25,967	320,9417	12,523	0,400	1,509	1,285
13	26,600	1194,5280	46,452	0,393	5,618	4,767
14	27,433	11638,0923	573,365	0,327	54,734	58,843
15	28,167	498,2173	18,850	0,413	2,343	1,935
-	Total	21263,0386	974,405			

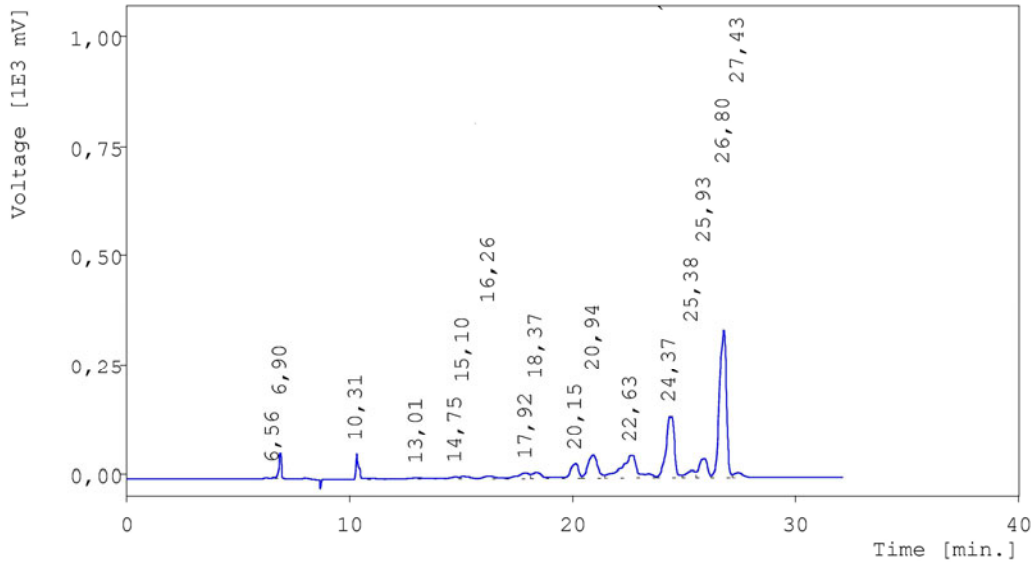
Figure S15(c4): RP-Hplc analysis of alkaline Hydrolysis products of **5′-r(CACGAAC)-3′ (7b)** [after digestion for **4h** at pH 12.5 using 0.03N NaOH/ 20°C, followed by quenching with 0.03 N aq. acetic acid]. For Hplc conditions see the experimental section in the text.



Result Table - Calculation Method Uncal

Peak No.	Reten. time	Area [mV.s]	Height [mV]	W05 [min.]	Area [%]	Height [%]
1	6,267	26,0389	2,142	0,213	0,127	0,235
2	6,807	465,9417	46,532	0,133	2,268	5,111
3	10,353	486,5589	53,096	0,113	2,368	5,832
4	14,553	52,0371	2,553	0,353	0,253	0,280
5	15,187	112,2625	4,332	0,433	0,546	0,476
6	16,047	150,2576	5,834	0,340	0,731	0,641
7	17,647	372,9742	13,097	0,407	1,815	1,439
8	18,173	429,5168	11,834	0,613	2,090	1,300
9	19,947	818,1920	37,117	0,353	3,982	4,077
10	20,627	1444,0259	51,850	0,413	7,028	5,696
11	22,553	2455,9158	54,111	0,593	11,953	5,944
12	24,307	3733,9038	147,749	0,360	18,173	16,230
13	25,193	410,4683	16,206	0,460	1,998	1,780
14	25,760	1149,0057	51,667	0,353	5,592	5,675
15	26,647	8101,9685	400,240	0,333	39,433	43,965
16	27,293	337,1603	11,999	0,500	1,643	1,319
-	Total	20546,2279	910,358			

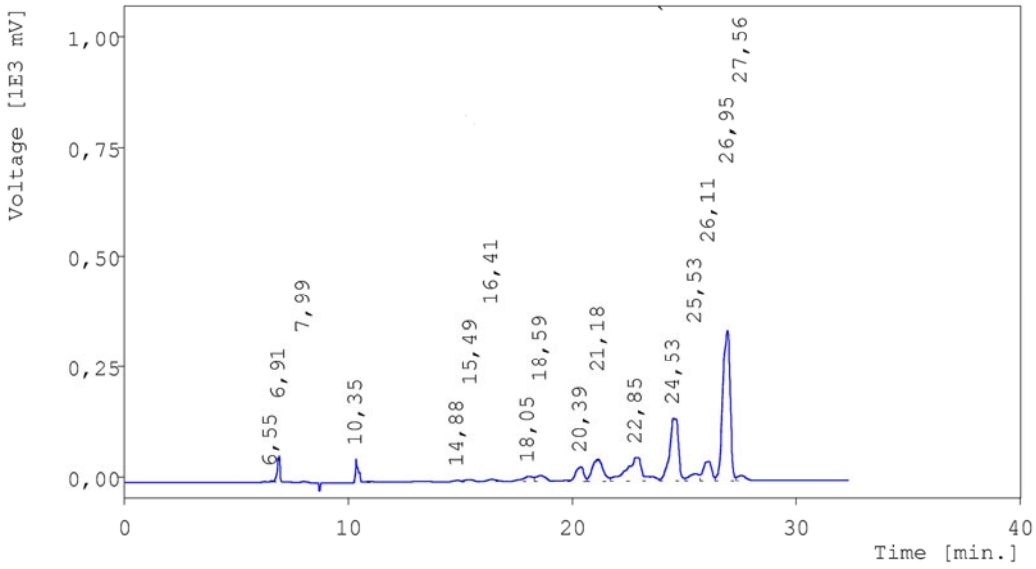
Figure S15(c5): RP-Hplc analysis of alkaline Hydrolysis products of **5′-r(CACGAAC)-3′ (7b)** [after digestion for **8h** at pH 12.5 using 0.03N NaOH/ 20°C, followed by quenching with 0.03 N aq. acetic acid]. For Hplc conditions see the experimental section in the text.



Result Table - Calculation Method Uncal

Peak No.	Reten. time	Area [mV.s]	Height [mV]	W05 [min.]	Area [%]	Height [%]
1	6,560	16,3190	2,596	0,113	0,078	0,305
2	6,900	443,6786	56,430	0,113	2,133	6,638
3	10,313	603,0884	57,226	0,120	2,899	6,732
4	13,013	289,6031	3,477	1,527	1,392	0,409
5	14,753	124,1227	5,103	0,400	0,597	0,600
6	15,100	190,5189	6,420	0,533	0,916	0,755
7	16,260	265,9078	6,453	0,560	1,278	0,759
8	17,920	474,5340	13,126	0,527	2,281	1,544
9	18,373	413,1389	14,578	0,527	1,986	1,715
10	20,147	926,1658	33,025	0,393	4,452	3,885
11	20,940	1591,3349	52,049	0,480	7,649	6,123
12	22,633	2590,1504	51,289	0,600	12,449	6,033
13	24,367	3693,9814	141,143	0,387	17,755	16,603
14	25,380	443,2384	15,987	0,473	2,130	1,881
15	25,933	1086,9508	42,868	0,407	5,224	5,043
16	26,800	7318,5751	337,204	0,360	35,176	39,666
17	27,433	334,0173	11,140	0,493	1,605	1,309
-	Total	20805,3255	850,113			

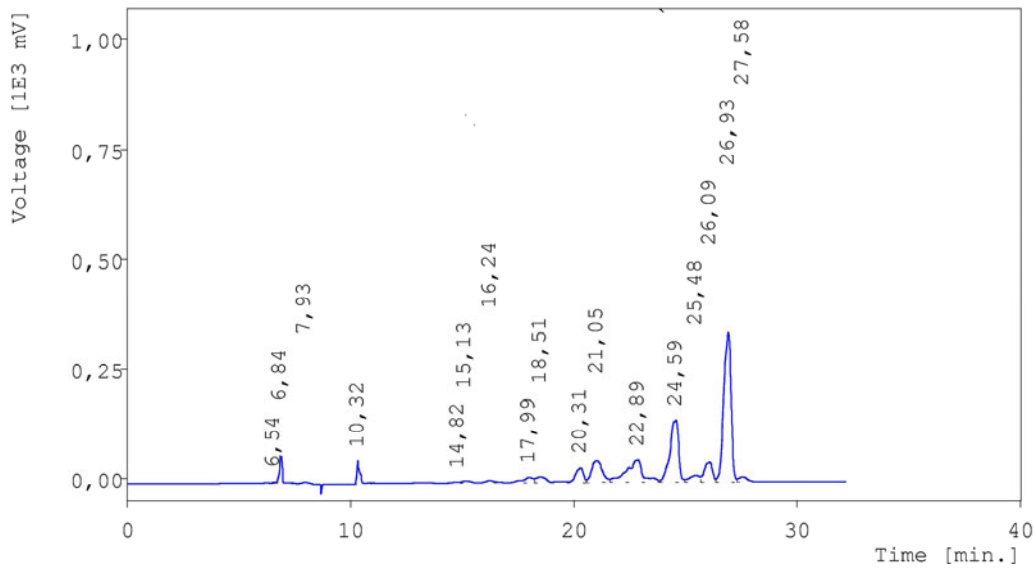
Figure S15(c6): RP-Hplc analysis of alkaline Hydrolysis products of **5′-r(CACGAAC)-3′ (7b)** [after digestion for **15h** at pH 12.5 using 0.03N NaOH/ 20°C, followed by quenching with 0.03 N aq. acetic acid]. For Hplc conditions see the experimental section in the text.



Result Table - Calculation Method Uncal

Peak No.	Reten. time	Area [mV.s]	Height [mV]	W05 [min.]	Area [%]	Height [%]
1	6,547	18,9493	2,611	0,133	0,089	0,311
2	6,913	489,6194	56,927	0,140	2,298	6,777
3	7,993	63,4406	3,202	0,280	0,298	0,381
4	10,353	565,0182	52,658	0,133	2,652	6,269
5	14,880	61,0898	2,990	0,393	0,287	0,356
6	15,493	129,6335	4,091	0,520	0,608	0,487
7	16,407	162,7800	5,070	0,480	0,764	0,604
8	18,053	390,7752	11,453	0,507	1,834	1,363
9	18,587	413,8484	13,644	0,567	1,943	1,624
10	20,393	888,1915	32,840	0,407	4,169	3,909
11	21,180	1670,4171	48,095	0,547	7,841	5,725
12	22,853	2685,2707	51,754	0,667	12,604	6,161
13	24,533	3913,0106	142,092	0,407	18,367	16,915
14	25,527	484,0372	16,069	0,520	2,272	1,913
15	26,113	1155,2379	43,665	0,433	5,423	5,198
16	26,953	7908,3550	341,597	0,380	37,121	40,665
17	27,560	304,3928	11,269	0,473	1,430	1,342
-	Total	21304,0670	840,027			

Figure S15(c7): RP-Hplc analysis of alkaline Hydrolysis products of **5′-r(CACGAAC)-3′ (7b)** [after digestion for **27h** at pH 12.5 using 0.03N NaOH/ 20°C, followed by quenching with 0.03 N aq. acetic acid]. For Hplc conditions see the experimental section in the text.



Result Table - Calculation Method Uncal

Peak No.	Reten. time	Area [mV.s]	Height [mV]	W05 [min.]	Area [%]	Height [%]
1	6,540	17,5694	2,462	0,127	0,082	0,291
2	6,840	582,8474	61,273	0,140	2,724	7,240
3	7,933	98,7680	4,218	0,340	0,462	0,498
4	10,320	547,7703	51,891	0,140	2,560	6,131
5	14,820	45,2478	2,437	0,320	0,211	0,288
6	15,127	120,1298	4,322	0,493	0,561	0,511
7	16,240	163,9731	5,161	0,453	0,766	0,610
8	17,993	410,1574	12,237	0,460	1,917	1,446
9	18,513	415,3318	13,617	0,567	1,941	1,609
10	20,307	891,7843	33,444	0,400	4,168	3,952
11	21,047	1655,0612	48,657	0,533	7,735	5,749
12	22,887	2679,1131	50,100	0,693	12,522	5,919
13	24,593	3905,2482	143,518	0,400	18,252	16,957
14	25,480	493,5675	15,890	0,533	2,307	1,877
15	26,093	1150,9578	44,474	0,427	5,379	5,255
16	26,933	7881,2894	341,135	0,387	36,836	40,306
17	27,580	336,8728	11,523	0,487	1,577	1,361
-	Total	21395,6894	846,357			

Figure S15(c8): RP-Hplc analysis of alkaline Hydrolysis products of **5′-r(CACGAAC)-3′ (7b)** [after digestion for **48h** at pH 12.5 using 0.03N NaOH/ 20°C, followed by quenching with 0.03 N aq. acetic acid]. For Hplc conditions see the experimental section in the text.